How Bad Would A Dirty Blast Be? Here's What The Experts Say.

Another day, another "credible" terrorist threat. The disaster scenario du jour is now the so-called dirty bomb, so called because this is a conventional bomb that plays dirty. Experts say a dirty bomb could range in size from a small "suitcase" device to a truck bomb, and maybe larger. Its explosive may be as ordinary as dynamite, but it's packaged with radioactive material that, detonated, is scattered in fragments and airborne dust -- or "dirt." Hence the name.

You have probably heard public officials and terrorist experts say a dirty bomb's real threat is psychological. And that it is a weapon of terror, fear, panic and disruption rather than one of mass destruction. But what else does the public need to know about dirty bombs? How bad are they, really? Here's the dirt:

What could happen if a dirty bomb went off in downtown Washington?

Experts envision scenarios that could be on the scale of Timothy McVeigh's 1995 truck bombing in Oklahoma City, which killed 168 people -- with the added dimension of radiation contamination. But it could be much less if it involved a small device, such as one set off by a backpack bomber.

"But even a big one would do much less damage than Hurricane Andrew did in Florida," says Randy Larsen, director of the ANSER Institute for Homeland Security, a nonprofit research organization in Alexandria.

Almost all deaths and serious injuries would be confined to the immediate vicinity of the explosion. The downtown area would shake from the blast. Anyone nearby would know a bomb had exploded but would have no clue it was a dirty bomb -- you can't smell, taste, feel or see radiation -- until authorities announce they have detected it.

How widespread the damage?

In March, the Washington-based Center for Strategic and International Studies simulated what would happen if terrorists detonated a 4,000-pound dirty bomb in a school bus parked outside the National Air and Space Museum. In the simulation, the museum ended up almost destroyed and nearby buildings damaged. An estimated 10,000 people were in the immediate vicinity; how many would have died isn't known, but the acute threat was confined to a radius of a few city blocks.

Although in the simulation, prevailing winds carried contamination into southern Pennsylvania, the amounts were very small because radiation dissipates quickly.

The highest contamination would occur in the blocks surrounding the blast -- or about 10 percent of the District, says Philip Anderson, senior fellow for homeland security initiatives at CSIS, who specializes in anti-terrorism strategies. People there would get about a 5-rem-per-hour dose of radiation. That's the amount the Environmental Protection Agency says is the maximum safe dose to absorb in one year, a standard that is considered very cautious; even absorbed in hours, the amount is not likely to make you sick.

Another 10 percent of the District -- people a half-mile to a mile from the blast -- would be in contaminated areas, but not seriously contaminated. The dose would be so small, says Anderson, that it would probably take days or weeks to exceed the EPA maximum yearly safe dose.

"The key point," he says, "is that nobody is going to become sick or die from radiation."

John Zielinski, professor of military strategy and operations at the National War College in Washington, estimates that, generally, someone a mile from the blast is likely to walk away unscathed. And "you could be within a couple hundred yards of it, and if you are upwind, you might not have a problem at all," he says. "If they set it off in a street and you are one block over and behind a building, there might be no risk."

What casualties?

Beyond those inflicted by the blast itself, the number of deaths and injuries is likely to be minimal -- depending on the radioactive material used, the size of the explosive, wind conditions and the effectiveness of the evacuation response.

Most experts play down any probability of radiation-related deaths. "Threat to life? Not worried about it other than the explosive device itself," says Larsen. "The main thing is, people should not lose much sleep over this.

"Just imagine if Timothy McVeigh had put five pounds of radioactive material and blew that up in Oklahoma. . . . No more people would have probably died than did."

Long-term effects of radiation exposure? Most experts say that except for people in the immediate area of the blast who survive, the odds are against anyone absorbing enough radiation to suffer long-term effects, such as radiation poisoning or cancer.

And the history of radiation exposure is on our side. In a nuclear disaster second only to Chernobyl that occurred in Brazil in 1987, junkyard workers pried open a metal canister from a cancer clinic. Inside was glowing blue radioactive cesium-137 dust. By the next day, dozens of locals had been exposed. "Several ingested it," says Anderson.

Of the 20 seriously exposed victims, "four died. But 100,000 plus people had to be medically evaluated. Most of those -- 47,000 people -- had to take a shower and be monitored down the road."

Although the devastation was unimaginable and an estimated 200,000 people died from the atomic bombs dropped on Hiroshima and Nagasaki -- from the explosion and radiation poisoning in the first year -- the long-term health-related problems for survivors hasn't been as horrific. Charles B. Meinhold, president emeritus of the National Council on Radiation Protection, a nonprofit international clearinghouse for research on radiation safety, says studies of those survivors since 1950 show that of 86,572 people exposed to levels of radiation thousands of times greater than a dirty bomb could produce, cancer deaths exceeded the expected numbers for that population by 335.

What should I do if I'm in the vicinity of the explosion?

The basic rule is to stay inside or get inside, then listen to the radio or television for further information.

The amount of radioactive dust that could seep inside or enter a building through its air-filtering system isn't likely to be significant. "If you are inside of a building, your chances are like getting several X-rays' worth of exposure," Zielinski says.

If you're outside, determine whether the wind is coming your way. "You don't want to be running down the street," Zelinski says. "Get into a building and reduce the amount of dust that gets on you."

Close to the explosion? Covered with residue? Stay put. "If the response is good, they are going to try to decontaminate folks closer in as opposed to those fleeing," says Zielinski. "Even if it takes an hour for authorities to respond, you are going to get better treatment there than going to a hospital."

Worst reaction? Racing for mass transit or trying to drive home. Not only could you contaminate your car, but you could also spread radiation to your family. And experts are concerned that people trying to flee the city would jam traffic routes and delay emergency teams from getting to the scene.

Experts say what the public needs to remember most about dirty bombs is that if you survive the explosion, the amounts of radiation are most likely so low that a few hours of exposure isn't going to be harmful.

"The public health people would be there within three hours or sooner," says Meinhold. "Let them worry about evacuation, decontamination, etc."

How about washing?

"Most or a large portion of the decontamination effort is going to involve a soapy shower and a change of clothes," says the CSIS's Anderson, who recommends that if you think you are near a potential terrorist target, it may make sense to keep extra clothes, shoes, soap and shampoo on hand.

Says Zielinski: "The first thing [is] to try to get as much off as you can, get the clothes off of you and put them in a trash bag. Then take a shower."

Can you drink the water?

There may be some contamination of water and food in some areas. "You can drink it, but there are definite issues there," warns Anderson, explaining that although a good rain would help clear contamination, the runoff might affect the groundwater supply.

Bottled water might be the safe way to go until authorities have tested drinking water, he says.

Would a gas mask help any?

Gas masks, experts say, may help in protecting against "particulate matter," since radiation attaches to particles in the air. But when you get much beyond the area of the blast, the dust is going to dissipate quickly anyway. "I'm not not sure it would make a difference," says Anderson.

Should we stock up on potassium iodide?

Again, the solution and the problem may not match well in a dirty-bomb attack, experts say. Potassium iodide protects the thyroid gland from absorbing radioactive isotope of iodine -- a component of radioactive fallout that causes radiation sickness.

"I'm not sure we're going to get to the point where we will have many people, if any, suffering from radiation sickness," says Anderson.

How likely is an attack?

Many experts believe that terrorists already have the crude radioactive materials needed and that a dirty bomb attack is one of the more likely terrorist scenarios -- some even say "inevitable." But Anderson cautions that "it's a simple plan that is still reasonably difficult and complicated to coordinate."

But the biggest problem in making a dirty bomb is that even if you find all the parts, assembling them can kill you. True, some terrorists are already suicidal. Still, "first you've got to find it, then you've got to carry it around," says Zielinski. "By the time I get it, move it to a site that is secure and grind it, I've probably already lost several people."

To make and transport a dirty bomb safely would require a lead container or shielding that makes it nearly impossible to move. Handling the material can cause burns on the hands and body, even through a backpack. And making a bomb without a shield means almost certain death from the concentrated radiation levels of a radioactive rod or "clump."

What do we have to fear?

Experts say the answer is fear itself. Dirty bombs can be as devastating as any conventional bomb. People will die in a dirty-bomb attack. But they believe very few people will die or get sick from its radiation. And the radiation is the terrorist wild card for causing panic and psychological trauma.

Experts are concerned that public panic is the biggest risk. "It stems from our society's inherent fear of radiation," says Anderson, explaining that he's not discounting the tremendous social and economic implications of a contaminated area in an urban center.

The blast area, he says, could be off-limits for several months during intense cleanup efforts, and that could disrupt the local economy.

Still, "a lot of this stuff, you just take a big fire hose out and you wash it down," says Larsen. "It's a heavy metal, so it goes to the bottom of the river. It shouldn't be too much problem. So then we have low levels of radiation. That's not as bad as smoking cigarettes. I'd rather be a half-mile from a dirty bomb site than smoke cigarettes."

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